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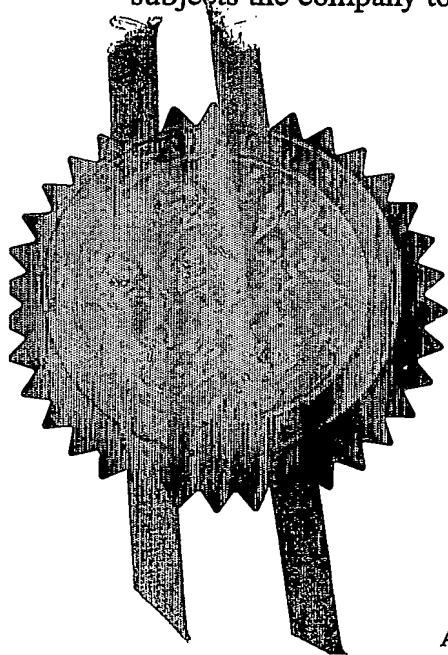
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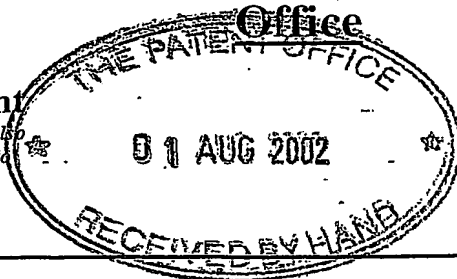
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P031373GB

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01 AUG 2002

3. Full name, address and postcode of the or of  
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Princess Elizabeth Way  
Cheltenham  
Gloucestershire  
GL51 7REPatents ADP number (*if you know it*)

711978004

If the applicant is a corporate body, give the  
country/state of its incorporation

United Kingdom

4. Title of the invention

Restricting Device

5. Name of your agent (*if you have one*)

Carpmaels &amp; Ransford

"Address for service" in the United Kingdom  
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Number of earlier application

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Patent Form 1/77

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Description	5
Claim(s)	2
Abstract	1
Drawing(s)	3 <i>or 3</i>

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Translations of priority documents	<i>1</i>
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Request for preliminary examination and search ( <i>Patents Form 9/77</i> )	<i>1</i>
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Any other documents ( <i>please specify</i> )	

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Signature

Date

*Carpmaels & Ransford*  
Carpmaels & Ransford

1st August 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

Richard E. Jackson

020-7242 8692

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Restricting Device

- The present invention relates to restricting devices, and in particular to releasable restricting devices that limit the opening and closing of a vent.

Windows often include a vent connected to a frame by a hinge. This arrangement enables the window to be opened widely. However, it is often desirable to be able to restrict the extent to which this type of window can be opened during normal use for reasons of safety and security. Any device for restricting the opening of a window during normal use must also allow the window to be opened fully when required, for example for cleaning or in the case of a fire.

- 10 Although a number of restricting devices have been suggested in the prior art, many of such devices are complicated to manufacture and difficult to use. In particular, many of the prior art restricting devices have to be incorporated when a vent is manufactured or hung, and cannot be added to restrict the movement of a vent that is already in place.

The present invention aims to provide a restricting device that is simple and easy to operate. The restricting device provided by the present invention is also detachable and can therefore be added to restrict the movement of vents that have already been hung.

The invention provides a restricting device for a closure including a vent hingedly connected to a frame, the restricting device being adapted to act between the vent and the frame and comprising a plate, an arm and means for releasably interengaging the arm and the plate, wherein, in use, when the plate and the arm are interengaged, the closure can only be opened a predetermined distance.

Preferably, the means for releasably interengaging the arm and the plate comprise a resilient means adapted to engage a locking pin. The resilient means may be mounted on the arm and adapted to engage a locking pin mounted on the plate. Alternatively, and more preferably, the resilient means is mounted on the plate and adapted to engage a locking pin mounted on the arm.

Preferably, the locking pin comprises a tapered head of increasing diameter leading to a neck portion of reduced diameter. Preferably, engagement between the locking pin and the resilient means occurs by forcing the tapered head of increasing diameter past the resilient means such that the resilient means engages with the neck portion of the locking pin, thereby securing the locking pin and hence the arm in place.

Preferably, the resilient means comprises a resilient strip, preferably a metal strip, having one or two legs. Preferably, the resilient means comprises a resilient strip having two legs such that engagement between the locking pin and the resilient means occurs by forcing the tapered head of increasing diameter between the two legs of the resilient strip so that the resilient strip engages with the neck portion of the locking pin.

Preferably, the restricting device further comprises means for mounting the resilient means on either the plate or the arm. Where the resilient means comprises a resilient strip having two legs, the means for mounting the strip of metal preferably comprises rivets which are adapted to hold the two legs of the strip in an operative position to allow engagement with the locking pin to occur. The means for mounting the resilient strip may further comprise a support plate to hold the resilient strip in place.

Preferably, the engagement between the arm and the plate is released by releasing the resilient means. Means for releasing the resilient means may form part of the restricting device itself. However, more preferably, the means for releasing the resilient means is separate from the rest of the device. Where the resilient means is a resilient strip having two legs, the means for releasing the resilient means is preferably a key that can be used to force the legs of the resilient strip apart such that the locking pin can be released. Where the locking pin comprises a tapered head of increasing diameter leading to a neck portion of reduced diameter, the key can preferably be used to force the legs of the resilient strip apart such that the major diameter of the tapered head of the locking pin can pass between them. Preferably, the key is adapted to be able to pass between the two legs of the resilient strip when it is engaged with the neck portion of the locking pin but to force the two legs of the resilient strip apart when the key is rotated. Preferably, the key has an eccentric cross-section, more preferably the cross-section has a major axis that is substantially perpendicular to a minor axis. Most preferably, the key has a diamond-shaped cross-section.

The plate of the restricting device may be mounted on a vent with the arm of the restricting device being mounted on a frame. Alternatively, and preferably, the plate of the restricting device is mounted on a frame and the arm of the restricting device is mounted on a vent. Preferably, the arm of the restricting device is pivotally mounted on either of one of a frame or a vent. Preferably, the arm of the restricting device is pivotally mounted on a track mounted on one of either a frame or a vent. Preferably, the track is a C-section

track. More preferably, the arm is pivotally mounted on a slider, possibly a friction slider, that is mounted in the track and adapted to slide along the track. The track preferably comprises stops to limit the extent to which the slider can slide along the track and to prevent the slider from sliding off either end of the track.

- 5 The restricting device of the invention may be adapted for use on any closure including doors and windows. Preferably, the restricting device is adapted for use on a window. The plate of a restricting device of the invention may include screw-holes to facilitate mounting the plate on a frame or a vent of the closure. Where the restricting device comprises a track, the track may also include screw-holes to facilitate attaching the track  
10 on a vent or a frame of the closure.

Other preferred features of the restricting device described above will become apparent from the description with reference to the drawings which follows herein.

The present invention is now described by way of example with reference to the accompanying drawings, in which:-

- 15 Figure 1 is an exploded isometric assembly drawing of an embodiment of a restricting device according to this present invention; and

Figures 2 to 8 are 2D drawings detailing the engagement and release of a locking pin mounted on an arm by a resilient means mounted on a plate, according to the present invention.

- 20 Referring to Figure 1, a restricting device comprises a joggled link (or mounting plate) 1 for attachment to a frame (not shown), a C-section track 10 for attachment to a vent (not shown), a slider 8, a pivot arm 7, a locking pin 5, a spring 2, and a key 6.

The joggled link includes screw-holes 15 to facilitate the attachment of the joggled link to the frame. The spring 2 is located beneath the joggled link 1 and above a support plate 4.

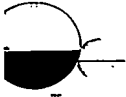
- 25 The spring comprises a resilient strip of metal having two legs. Rivets 3 hold the joggled link 1, spring 2 and support plate 4 together. The rivets 3 also hold the two legs of the resilient strip of metal in an operative position to enable engagement with a locking pin on the arm to occur.

- The track 10 includes screw-holes 13 to facilitate attachment of the track to a vent. A slider  
30 8 is engaged with the track 10 such that it can slide along it. The track 10 also includes track stops 14 which limit the extent to which the slider 8 can slide along the track 10 and prevent the slider 8 from sliding out of the ends of the track 10.

The pivot arm 7 is pivotally connected to the slider 8 by means of a rivet 3 and a washer 9. The other end of the pivot arm 7 comprises the locking pin 5 having a tapered head 5b of increasing diameter leading to a neck portion 5a of reduced diameter. The joggled link 1 has a pivot hole 11 for receiving the locking pin 5 when the pivot arm 7 is engaged with the joggled link 1 and a keyway 12 for receiving the key 6 to enable the pivot arm 7 to be released from the joggled link 1.

Figures 2 to 5 detail the engagement of the locking pin 5 of the pivot arm 7 with the joggled link 1. Referring to Figure 2, the tapered head of the locking pin 5 is pushed through the pivot hole 11 of the joggled link 1. The tapered head of the locking pin 5 engages on the legs of the spring 2 below the joggled link forcing them apart, as shown in Figure 3. Eventually, as shown in Figure 4, the legs of the spring 2 are forced far enough apart to enable the major diameter of the tapered head of the locking pin 5 to pass between them. Once the major diameter of the locking pin 5 has passed between the legs of the spring 2, the legs of the spring 2 flex back into the reduced diameter of the neck portion of the locking pin 5, securing it in place, as shown in Figure 5. If the locking pin 5 is engaged with the joggled link in this way when the vent is closed, the vent can only be partially opened. The vent can only be opened as far as is allowed by the sliding of the slider 8 along the track 10 mounted on the vent.

Figures 6 to 8 detail the release of the pivot arm 7 from the spring 2. Release of the pivot arm is achieved by using a key 6 which is inserted into a keyway 12 in the joggled link, as shown in Figure 6. The key 6 has a diamond-shaped cross-section with one diameter of the diamond being sufficiently small to enable the key to pass between the legs of the spring 2 when it is engaged with the neck portion of the locking pin 5. As the key is rotated, the larger second diameter of the diamond cross-section engages with the legs of the spring 2 (Figure 7) eventually flexing them apart enough to enable the major diameter of the tapered head of the locking pin 5 to pass between them, as shown in Figure 8. The locking pin 5 can then be removed from the spring 2 through the pivot hole 11 in the joggled link 1. As the movement of the pivot arm 7 is no longer restricted by engagement with the spring 2 attached to the joggled link 1, the movement of the vent is not restricted and it can open freely. It will be appreciated that the cross-section of the key does not have to be diamond-shaped. A key with any suitable cross-section may be used provided that it is able to pass between the legs of the spring when the spring is engaged with the neck of the locking pin, and that, on rotation, it is able to engage with the legs of the spring, forcing



them apart to enable the major diameter of the tapered head of the locking pin to pass between them such that the locking pin can be removed.

It will of course be understood that the present invention has been described above purely by way of example, and that modifications of detail can be made within the scope of the  
5 invention.



## CLAIMS:

1. A restricting device for a closure including a vent hingedly connected to a frame, the restricting device being adapted to act between the vent and the frame, and comprising a plate, an arm and means for releasably interengaging the arm and the plate, wherein,  
5 in use, when the plate and the arm are interengaged, the closure can only be opened a predetermined distance.
2. A restricting device according to claim 1, wherein the means for releasably interengaging the arm and the plate comprises a resilient means adapted to engage a locking pin.
- 10 3. A restricting device according to claim 2, wherein the resilient means is mounted on the plate and the locking pin is mounted on the arm.
4. A restricting device according to claim 2, wherein the resilient means is mounted on the arm and the locking pin is mounted on the plate.
5. A restricting device according to any one of claims 2 to 4, wherein the locking pin  
15 comprises a tapered head of increasing diameter leading to a neck portion of reduced diameter.
6. A restricting device according to any one of claims 2 to 5, wherein the resilient means comprises a resilient strip having two legs.
7. A restricting device according to claim 6, wherein said resilient strip is a resilient strip  
20 of metal.
8. A restricting device according to claim 6 or claim 7 when dependent on claim 5, wherein the engagement between the locking pin and the resilient means occurs by forcing the tapered head between the two legs of the resilient strip until the legs engage with the neck portion of the locking pin.
- 25 9. A restricting device according to any one of claims 2 to 8, comprising means for mounting the resilient means on one of either the plate or the arm.
10. A restricting device according to any one of claims 2 to 9, wherein engagement between the arm and the plate is released by releasing the resilient means.
11. A restricting device according to claim 10, wherein means for releasing the resilient  
30 means is separate from the rest of the device.

12. A restricting device according to claim 11, wherein release of the resilient means is effected using a key
13. A restricting device according to claim 12, when dependant on claim 6, wherein the key can be used to force the two legs of the resilient strip apart.
- 5 14. A restricting device according to claim 13, wherein the key has an eccentric cross-section.
15. A restricting device according to any preceding claim, wherein the arm is pivotally mounted on a track.
16. A restricting device according to claim 15, wherein the track is a C-section track.
- 10 17. A restricting device according to claim 15 or claim 16, wherein the arm is pivotally mounted on a slider that is mounted in the track.
18. A restricting device according to claim 17, wherein the slider is a friction slider.
19. A restricting device according to any one of claims 15 to 18, wherein the track comprises stops.
- 15 20. A window or a door incorporating a device as claimed in any preceding claim.
21. A window or a door according to claim 20, wherein the plate is mounted on a vent and the arm is mounted on a frame.
22. A window or a door according to claim 20, wherein the plate is mounted on a frame and the arm is mounted on a vent.
- 20 23. A restricting device for a closure substantially as hereinbefore described with reference to the accompanying drawings.

**Abstract:****- Restricting device: -**

The invention provides a restricting device for a closure including a vent hingedly connected to a frame, the restricting device comprising a plate 1 for mounting on a frame, an arm 7 for pivotally mounting on a vent and means for releasably interengaging the arm and the plate, wherein, in use, when the plate and the arm are interengaged, the closure can only be opened a predetermined distance. The device is simple to use and has the advantage that it is detachable.

FIG. 1

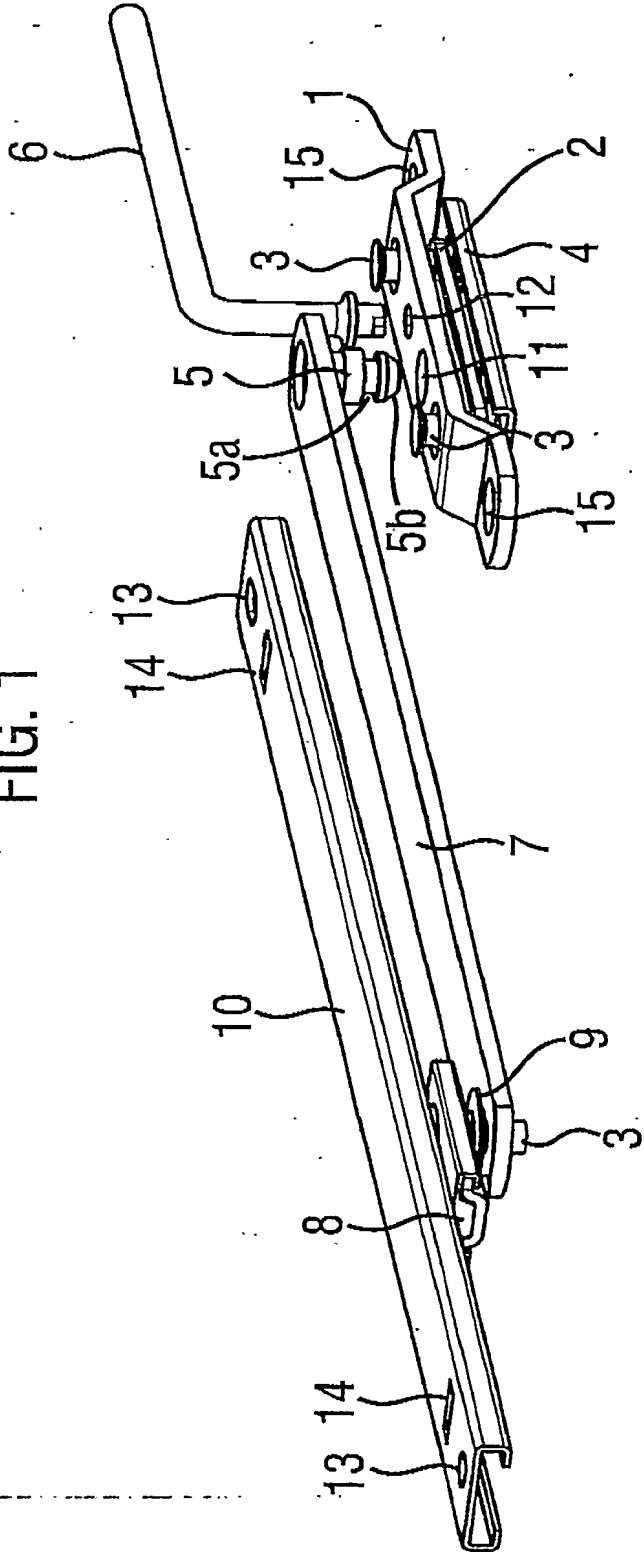


FIG. 2

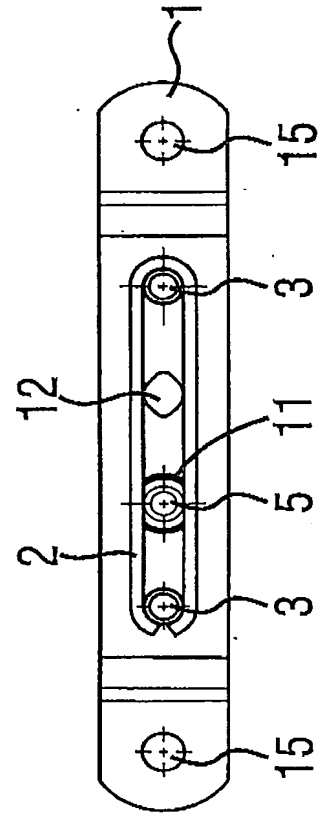


FIG. 3

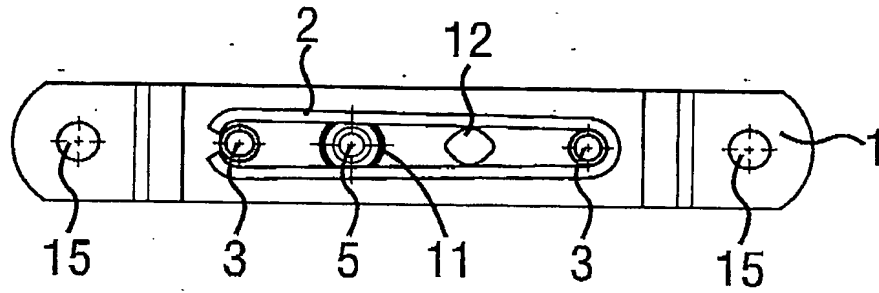


FIG. 4

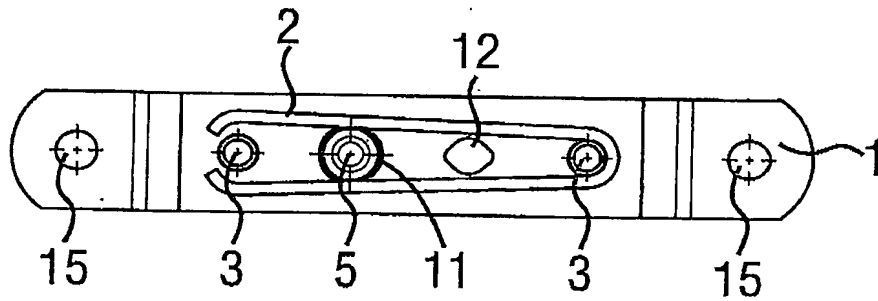


FIG. 5

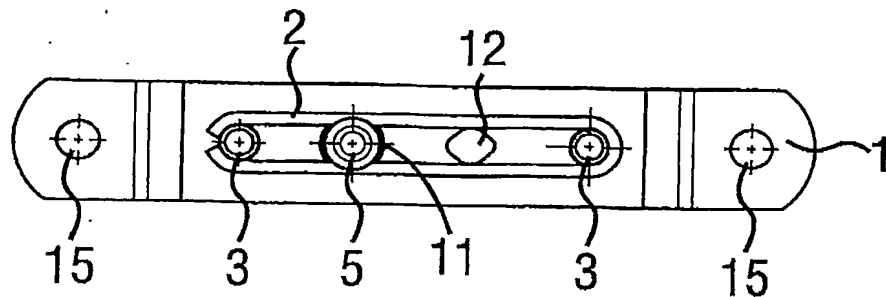


FIG. 6

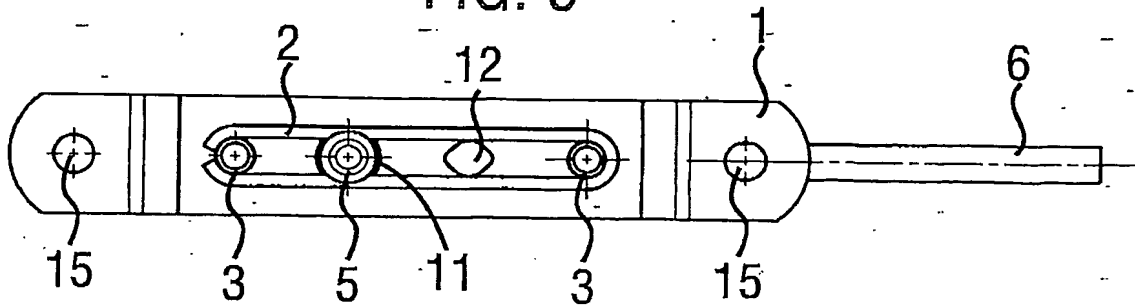


FIG. 7

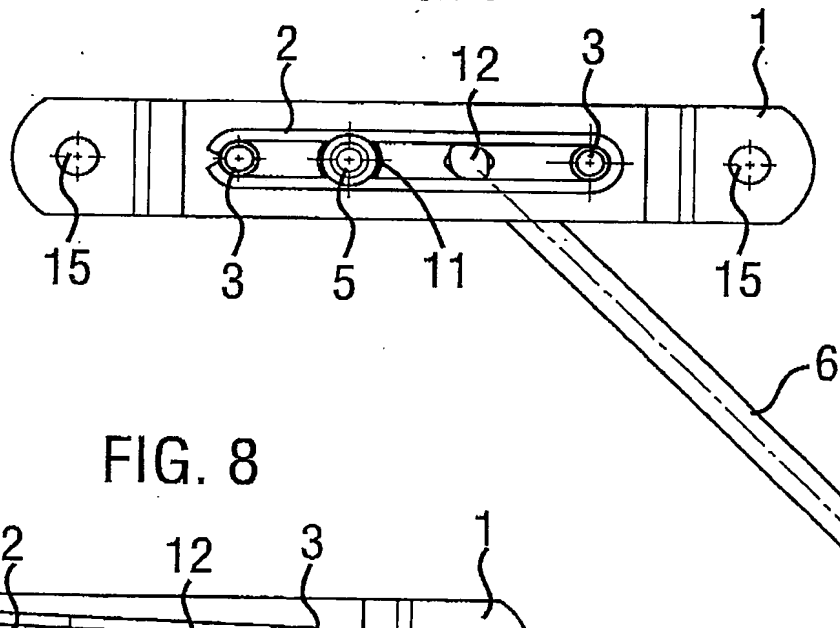
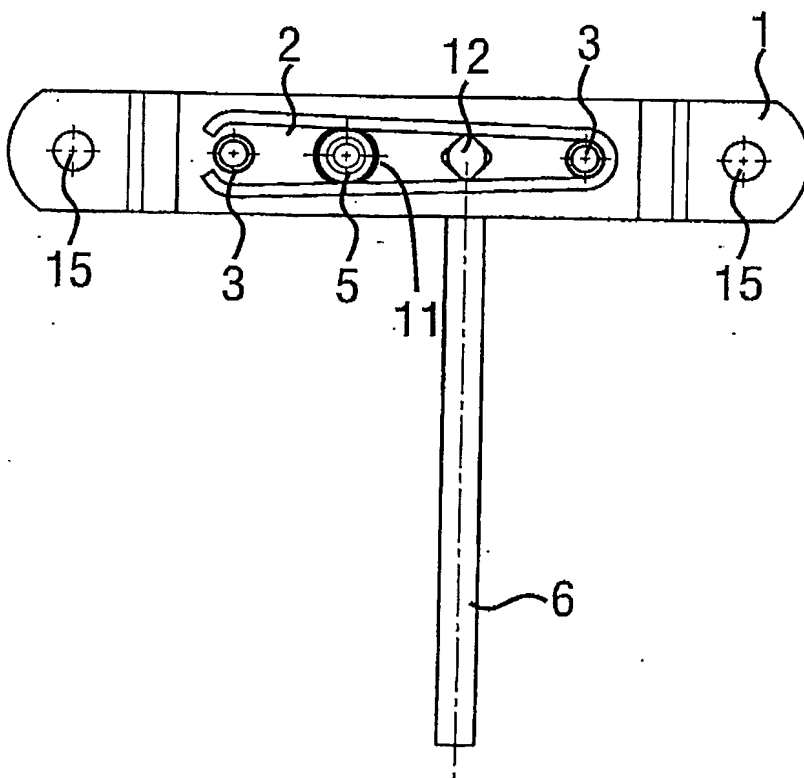


FIG. 8



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